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(54) Title of the Invention: Herbicide composition

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(57) [Abstract]

[Purpose]

Offer the outstanding herbicide.

[Means to Solve the Problems]

N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazine-6-yl)cyclohex-1-ene-1,2-dicarboxamide, 2',6'-difluoro-5-methyl [1,2,4] triazolo [1,5 and -] [a] pyrimidine 2-sulfone anilide, Methyl 3-chloro-2-(5-ethoxy-7-fluoro [1,2,4] triazolo [1,5-] [c] pyrimidine 2-ylsulfonamide) benzoate, 2',6'-Dichloro-5,7-dimethoxy-3'-methyl [1,2,4] triazolo [1,5 and -] [a] pyrimidine 2-sulfone anilide, 2',6'-dichloro-7-ethoxy-5-fluoro [1,2,4] Use as an active substance a kind chosen from the group which consists of 1,5 and - triazolo [c] pyrimidine 2-sulfone anilide and 2',4,6'-trifluoro-7-methoxy [1,2,4] triazolo [1,5 and -] [c] pyrimidine 2-sulfone anilide. The herbicide composition characterized by containing.

[Claims]

[Claim 1]

N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazine-6-yl)cyclohex-1-ene-1,2-dicarboxamide, 2',6'-difluoro-5-methyl [1,2,4] triazolo [1,5 and -] [a] pyrimidine 2-sulfone anilide, Methyl 3-chloro-2-(5-ethoxy-7-fluoro [1,2,4] triazolo [1,5-] [c] pyrimidine 2-ylsulfonamide) benzoate, 2',6'-Dichloro-5,7-dimethoxy-3'-methyl [1,2,4] triazolo [1,5 and -] [a] pyrimidine 2-sulfone anilide, 2',6'-dichloro-7-ethoxy-5-fluoro [1,2,4] Use as an active substance a kind chosen from the group which consists of 1,5 and - triazolo [c] pyrimidine 2-sulfone anilide and 2',4,6'-trifluoro-7-methoxy [1,2,4] triazolo [1,5 and -] [c] pyrimidine 2-sulfone anilide. The herbicide composition characterized by containing.

[Claim 2]

A herbicide composition given in Claim 1 for preventing the weeds in soybean fields, a cornfield, or the field of wheat (wheat, a barley, rye, oat).

[Detailed Description of the Invention]

[0001]

[Technical Field of the Invention]

The present invention relates to a herbicide composition suitable for preventing the weeds in a herbicide composition especially soybean fields, a cornfield, or the field of wheat (wheat, a

barley, rye, oat).

[0002]

[A conventional technique and Object of the Invention]

Although many herbicides are marketed and used now, a class also has many weeds which are the targets of control, in order to also continue a development for a long period of time, weeding effects are higher, and it has a broad weed killing spectrum, and the herbicide which does not produce the problem of phytotoxicity to a crop is called for.

[0003]

[Means to Solve the Problems]

the result wholeheartedly examined so that this inventor may find out the outstanding herbicide - N-(7-fluoro-3,4-dihydro-3-oxo-4-prop-2-ynyl-2H-1,4-benzoxazine-6-yl)cyclohex-1-ene-1,2-dicarboxamide (generic name: -- flumioxazin --) the following and flumioxazin -- describing -- 2',6'-difluoro-5-methyl [1,2,4] triazolo [1,5 and -] [a] pyrimidine 2-sulfone anilide (generic name: -- full metosulam --) hereafter, it is described as full metosulam -- methyl 3-chloro-2-(5-ethoxy-7-fluoro [1,2,4] triazolo [1,5-] [c] pyrimidine 2-ylsulfonamide) benzoate (generic name: -- a cloransulam methyl --) hereafter, it is described as a cloransulam methyl -- 2',6' - dichloro-5,7-dimethoxy-3'-methyl [1,2,4] triazolo [1,5 and -] [a] pyrimidine 2-sulfone anilide (generic name: -- metosulam --) hereafter, it is described as metosulam -- 2',6' - dichloro-7-ethoxy-5-fluoro [1,2,4] triazolo [1,5 and -] [c] pyrimidine 2-sulfone anilide (generic name: diclosulam and the following) it is described as diclosulam -- and 2',4,6'-trifluoro-7-methoxy [1,2,4] triazolo [1,5 and -] [c] pyrimidine 2-sulfone anilide (generic name: -- florasuram --) By processing the herbicide composition which contains a kind chosen from the group which consists of describing it as florasuram hereafter as an active substance to soil or weeds The various weeds generated in crop land or non-crop land can be weeded out effectively. And since the weeding-out validity increases synergistically as compared with the case where they are used independently, it can carry out application in a low dose. Furthermore, the weed control spectrum was expanded, and it found out that a wide range kind of weeds could be especially weeded out selectively in soybean fields, a cornfield, or the field of wheat (wheat, a barley, rye, oat), and resulted in the present invention. The present invention Namely, flumioxazin, and full metosulam, a cloransulam methyl, The herbicide composition (, hereafter described as this invention composite) which contains a kind chosen from the group which consists of metosulam, diclosulam, and florasuram as an active substance (it is hereafter described as this active substance.) is offered.

[0004]

[Embodiments]

The flumioxazin which is one of the active substances of this invention composite is a compound of a statement with a THE PESTICIDE MANUAL and an ELEVENTH EDITION (BRITISH CROP PROTECTION COUNCIL, 1997) of 577 pages. Full metosulam, a cloransulam methyl, and metosulam THE PESTICIDE MANUAL, 573 pages of ELEVENTH EDITION (BRITISH CROPPROTECTION COUNCIL, 1997), 265 pages, It is a compound given [respectively] in 836 pages. Diclosulam is a compound of a statement at AG CHEM NEW COMPOUND REVIEW and VOLUME 15-1997 (AG CHEM INFORMATION SERVICES issuance, 1997) 15

page. Florasuram is a compound of a statement at AG CHEM NEW COMPOUND REVIEW and VOLUME 17-1999 (AG CHEM INFORMATION SERVICES issuance, 1999) 36 page.

[0005]

This invention composite has weeding-out activity to wide range weeds, and is rich also in selectivity with a crop. Since the weeding-out activity which was excellent also in non-crop land, such as the plantation art fields, such as non-tilled cropping, an orchard, etc. besides the usual ploughing vegetation, and a playground, a vacant lot, a woodland, a line end, and the transmission-line lower, is demonstrated, it excels as a herbicide. This invention composite has the weeding-out validity which was excellent to the following various weeds which pose a problem in soybean fields, a cornfield, the field of wheat (wheat, a barley, rye, oat), etc. especially.

Onagraceae weeds: An evening primrose (*Oenothera acrythrosepala*), MEMATUYO rush (*Oenothera biennis*), KOMATUYO rush (*Oenothera laciniata*)

Ranunculaceae weeds: TOGEMINO *Ranunculus glaber* (*Ranunculus muricatus*), IBOMI *Ranunculus* (*Ranunculus sardous*)

Polygonaceae weeds: Wild buckwheat (*Polygonum convolvulus*), *Polygonum scabrum* (*Polygonum lapathifolium*), U.S. *Polygonum scabrum* (*Polygonum pennsylvanicum*), A spotted lady's thumb (*Polygonum persicaria*), a Japanese knotweed (*Polygonum cuspidatum*), *Polygonum aviculare* (*Polygonum aviculare*), NAGABA creak (*Rumex crispus*), EZONO creak (*Rumex obtusifolius*), HIMESUIBA (*Rumex acetosella*)

Portulacaceae weeds: Purslane (*Portulaca oleracea*)

Caryophyllaceae weeds: Chickweed (*Stellaria media*), the Netherlands cerastium (*Cerastium glomeratum*)

Chenopodiaceae weeds: A fat hen (*Chenopodium album*), a cotton bush (*Kochia scoparia*)

Amaranthaceae weeds: *Amaranthus retroflexus* L. (*Amaranthus retroflexus*), HONAGA *Amaranthus retroflexus* L. (*Amaranthus hybridus*), OOHONAGA *Amaranthus retroflexus* L. (*Amaranthus palmeri*), torr water -- a hemp (*Amaranthus tuberculatus*) and common water -- a hemp (*Amaranthus rudis*)

Brassicaceae weeds: A wild radish (*Raphanus raphanistrum*), a charlock (*Sinapis arvensis*), shepherd's purse (*Capsella bursa-pastoris*), MAMEGUNBAINAZUNA (*Lepidium virginicum*)
Leguminosae weed: *Sesbania exaltata* (*Sesbania exaltata*), *Cassia obtusifolia* (*Cassia obtusifolia*), Florida BEGA- Weed (*Desmodium tortuosum*), A white clover (*Trifolium repens*), a OOKARASUNO pea (*Vicia sativa*), a black medic (*Medicago lupulina*)

Papaveraceae weeds: Flanders poppy (*Papaver rhoeas*)

Malvaceae weeds: An abutilon theophrasti (*Abutilon theophrasti*), *Sida spinosa* (*Sida spinosa*), GINSENKA (*Hibiscus trionum*)

Violaceae weeds: A field pansy (*Viola arvensis*), a wild pansy (*Viola tricolor*)

Rubiaceae weeds: Catchweed (*Galium aparine*)

Convolvulaceae weeds: *Ipomoea hederacea* (*Ipomoea hederacea*), *Ipomoea purpurea* (*Ipomoea purpurea*), MARUBA *Ipomoea hederacea* (*Ipomoea hederacea var. integriscula*), MAMEASAGAO (*Ipomoea lacunosa*), a SEIYOU *Calystegia japonica* (*Convolvulus arvensis*), a HIROHA *Calystegia japonica* (*Calystegia sepium*)

Lamiaceae weeds: HIMEODORIKOSOU (*Lamium purpureum*), a henbit (*Lamium amplexicaule*)

Solanaceae weeds: A SHIROBANA hindu datura (*Datura stramonium*), *Solanum nigrum* (*Solanum nigrum*), a bull nettle (*Solanum carolinense*)

Scrophulariaceae weeds: OOINUNOFUGURI (*Veronicapersica*), TATIINUNOFUGURI (*Veronicaarvensis*), flaser BASOU (*Veronicahederaefolia*)
 Compositae weeds: A cocklebur (*Xanthiumstrumarium*), A wildness sunflower (*Helianthusannuus*), chamomillae flos (*Matricariachamomilla*), Dog chamomillae flos (*Matricariaperforataorinodora*), A pineapple weed (*Matricariamatricarioides*), A cone marigold (*Chrysanthemumsegetum*), A ragweed (*Ambrosiaartemisiifolia*), OOBUTAKUSA (*Ambrosiatriifida*), HIMEMUKASHIYOMOGI (*Erigoncanadensis*), sage brush (*Artemisiaprinceps*), A tall goldenrod (*Solidagoaltissima*), OQAWADATISOU (*Solidagogigantea*), A SEIYOU dandelion (*Taraxacumofficinale*), *Senecio vulgaris* (*Seneciovulgaris*), HAKIDAMEGIKU (*Galinsogaciliata*)
 Boraginaceae weeds: A forget-me-not (*Myosotisscorpoides*), NOHARAMURASAKI (*Myosotisarvensis*)
 Asclepiadaceae weeds: Yellow peach cotton (*Asclepiassyriaca*)
 Euphorbiaceae weeds: Euphorbiaceae (*Euphorbiahelioscopia*), OONISHIKISOU (*Euphorbiamaculata*)
 Geraniaceae weeds: AMERIKAFUORO (*Geraniumcarolinianum*)
 Oxalidaceae weeds: MURASAKI *Oxalis corniculata* (*Oxaliscorymbosa*)
 Cucurbitaceae weeds: Bur cucumber (*Sicyosangulatus*)
 Gramineous weed: Barnyard grass (*Echinochloacrus-galli*), Bristle grass (*Setariaviridis*), *Setaria faberi* (*Setariafaberi*), Common crab grass (*Digitariasanguinalis*), crab grass (*Eleusineindica*), Annual bluegrass (*Poaannua*), a black grass (*Alopecurusmyosuroides*), Oats (*Avenafatua*), silky bentgrass (*Aperaspica-venti*), Johnson grass (*Sorghumhalepense*), Dutch grass (*Agropyronrepens*), Horse NOTTYAHIKI (*Bromustectorum*), bermudagrass (*Cynodonectylon*), *Panicum dichotomiflorum* (*Panicumdichotomiflorum*), The Texas PANIKAMU (*Panicumtexanum*), SHIYATA- Kane (*Sorghumvulgare*), NARUKOBIE (*Eriochloavillosa*), foxtail (*Alopecurusgeniculatus*)
 Commelinaceae weeds: Commelina (*Commelinacommunis*), MARUBA Commelina (*Commelinabenghalensis*)
 Equisetaceae weeds: Field horsetail (*Equisetumarvense*)
 Cyperaceae weed: KOGOMEGAYATURI (*Cyperusiria*), HASUMAGE (*Cyperusrotundus*), KIHASUMAGE (*Cyperusculentus*)
 On the other hand, this invention composite does not produce phytotoxicity which poses a problem to the soybeans, maize, and wheat (the wheat, the barley, the rye, oat) which are crops.

[0006]

Although the mixing ratio with a kind chosen from the group which serves as flumioxazin from full metosulam, a cloransulam methyl, metosulam, diclosulam, and florasulam in this invention composite may change according to the target weeds kind, an application scene, application conditions, etc. Usually, it is as follows in a bulk density. the mixing ratio of flumioxazin and full metosulam -- 1:0.01-100 -- it being the range of 1:0.1-5 preferably, and the mixing ratio of flumioxazin and a cloransulam methyl -- 1:0.01-100 -- it being the range of 1:0.1-2 preferably, and the mixing ratio of flumioxazin and metosulam -- 1:0.01-100 -- it being the range of 1:0.01-2 preferably, and the mixing ratio of flumioxazin and diclosulam -- 1:0.01-100 -- it is the range of 1:0.1-2 preferably -- the mixing ratio of flumioxazin and florasulam -- 1:0.01-100 -- it is the range of 1:0.01-1 preferably.

[0007]

Usually it mixes with a solid support, a liquid carrier, etc., and this active substance adds a surface active agent, other adjuvants for pharmaceutical preparation, etc. as occasion demands, and is prepared and used for dustable powder, an emulsifiable concentrate, a water-dispersible powder, a suspension concentrate, granule-izing, granular wettable powder, etc. In these pharmaceutical preparation, this active substance usually contains one to 80% of the weight preferably 0.5 to 90% of the weight.

[0008]

Face preparing and as a solid support used for example, natural minerals (the clay which makes a principal component kaolinite, bentonite, acid clay, and these --) other inorganic minerals (sericite and ground quartz --), such as kieselguhr and a talc saccharides (lactose, sucrose, and fruit sugar --), such as sulfur powder, activated carbon, and calcium carbonate Starch, reforming starch, cellulose and its derivative, gum arabic, alginic acid, etc., They are mentioned by impalpable powder and granular material, such as chemical fertilizers (ammonium sulfate, ammonium phosphate, ammonium nitrate, ammonium chloride, urea, etc.), and as a liquid carrier For example, water and alcohols (methanol, ethanol, benzyl alcohol, etc.), Ketone (acetone, methyl ethyl ketone, cyclohexanone, etc.) aromatic hydrocarbon (toluene, xylene, ethylbenzene, and methylnaphthalene --) non-aromatic hydrocarbon (hexane and cyclohexane --), such as phenyl xylol ethane esters (ethyl acetate --), such as kerosine, paraffin, liquid paraffin, and naphthene Nitrile (acetonitrile, isobutyronitrile, etc.), such as butyl acetate, methyl oleate, and methyl laurate, the ether (dioxane, diisopropyl ether, etc.), and acid amide (dimethylformamide, dimethylacetamide, etc.) Halogenated hydrocarbon (dichloroethane, trichloroethylene, etc.) is mentioned.

[0009]

As a surface active agent, for example An alkyl-sulfuric-acid esters and alkyl phosphate An alkyl-sulfonic-acid salt, alkyl phosphate, alkylaryl sulfonates, The condensate of alkylaryl sulfonates and formaldehyde, alkyl aryl phosphate, Sulfonic acid or phosphate of alkyl allyl ether and the polyoxyethylene ghost of those, and aryl phenyl ether, Aryl phenyl ether and the polyoxyethylene ghost of those, polyethylene glycol ethers, multivalent alcohol ester, a sugar alcohol derivative, and lignin-derivatives etc are mentioned. as the other adjuvants for pharmaceutical preparation -- casein, gelatin, and a synthetic water soluble polymer (polyvinyl alcohol --) Anchorages and dispersants, such as polyvinyl pyrrolidone and polyacrylic acid Hitoshi, PAP (acid isopropyl phosphorate), Stabilizers and auxiliary solvents, such as BHT (2, 6-tert-butyl-4 --METIRU phenol), BHA (2- / 3-tert-butyl-4-methoxyphenol), a vegetable oil, straight mineral oil, fatty acid, and fatty acid ester, are mentioned.

[0010]

After manufacturing each active substance with the above-mentioned pharmaceutical preparation approach, this invention composite can also be prepared by mixing these, and can also be mixed or used together at the time of application. Thus, this prepared invention composite comes out as it is, or is diluted with water etc., and is processed by soil or weeds. By mixing with the herbicide of further others and using, this invention composite can expect enhancement of weeding-out validity, and can also use it together with an insecticide, a fungicide, a plant growth regulator, a

fertilizer, a soil conditioner, a phytotoxicity mitigating agent (SEFUNA), etc. further.

[0011]

The amount of application of this invention composite Flumioxazin, and full metosulam, a cloransulam methyl. Although it may change with mixing ratio with a kind chosen from the group which consists of metosulam, diclosulam, and florasulam, a meteorological condition, formulation, an application stage, the application procedure, an application location, the weeds for control, and an object crop, it is as follows as an amount of these active substances per ha. The case of flumioxazin and full metosulam Usually, 5-500g, are 30-200g preferably and the case of flumioxazin and a cloransulam methyl Usually, 5-500g, are 30-150g preferably and the case of flumioxazin and metosulam Usually, it is 20-130g preferably, 5-500g of cases [5-500g of] of flumioxazin and diclosulam are usually 40-140g preferably, and 5-500g of cases of flumioxazin and florasulam are usually 20-110g preferably. An emulsifiable concentrate, a water-dispersible powder, a suspension concentrate, granular wettable powder, etc. dilute and carry out application of the predetermined quantity with water usual [per ha / 100-1000l. of], and application of the granule etc. is carried out as it is, without usually diluting in any way. Moreover, the aerial application by the aircraft, a radio control machine, etc. is also possible.

[0012]

[Examples]

Hereafter, a pharmaceutical preparation example is shown. In the following examples, a part expresses a weight part.

Pharmaceutical preparation example 1

20 parts of flumioxazin, 20 parts of full metosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 55 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 2

20 parts of flumioxazin, 40 parts of full metosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 35 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 3

40 parts of flumioxazin, 20 parts of full metosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 35 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

[0013]

Pharmaceutical preparation example 4

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 20 parts of flumioxazin, 20 parts of full metosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 54 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 5

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 15 parts of flumioxazin, 30 parts of full metosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 49 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 6

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 30 parts of flumioxazin, 15 parts of full metosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 49 parts of water and a grain size becomes 5 microns or less.

[0014]

Pharmaceutical preparation example 7

20 parts of flumioxazin, 20 parts of cloransulam methyls, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 55 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 8

30 parts of flumioxazin, 15 parts of cloransulam methyls, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 50 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 9

40 parts of flumioxazin, ten parts of cloransulam methyls, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 45 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

[0015]

Pharmaceutical preparation example 10

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 20 parts of flumioxazin, 20 parts of cloransulam methyls, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 54 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 11

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 30 parts of flumioxazin, 15 parts of cloransulam methyls, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 49 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 12

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, ten parts of cloransulam methyls, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 44 parts of water and a grain size becomes 5 microns or less.

[0016]

Pharmaceutical preparation example 13

30 parts of flumioxazin, 15 parts of metosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 50 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 14

40 parts of flumioxazin, ten parts of metosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 45 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 15

40 parts of flumioxazin, five parts of metosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 50 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

[0017]

Pharmaceutical preparation example 16

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 30 parts of flumioxazin, 15 parts of metosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 49 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 17

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, ten parts of metosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 44 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 18

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, five parts of metosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 49 parts of water and a grain size becomes 5 microns or less.

[0018]

Pharmaceutical preparation example 19

30 parts of flumioxazin, 15 parts of diclosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 50 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 20

30 parts of flumioxazin, ten parts of diclosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 55 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 21

40 parts of flumioxazin, ten parts of diclosulam, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 55 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

[0019]

Pharmaceutical preparation example 22

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 30 parts of flumioxazin, 15 parts of diclosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 49 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 23

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 30 parts of flumioxazin, ten parts of diclosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 54 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 24

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, ten parts of diclosulam, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 54 parts of water and a grain size becomes 5 microns or less.

[0020]

Pharmaceutical preparation example 25

40 parts of flumioxazin, eight parts of florasuram, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 47 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 26

40 parts of flumioxazin, four parts of florasuram, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 51 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

Pharmaceutical preparation example 27

40 parts of flumioxazin, two parts of florasuram, three parts of calcium ligninsulfonate, two parts of sodium lauryl sulfate, and 53 parts of synthetic water oxidation silicon are often ground after mixing, and a water-dispersible powder is obtained.

[0021]

Pharmaceutical preparation example 28

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, eight parts of florasuram, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 46 parts of water and a grain size becomes 5

microns or less.

Pharmaceutical preparation example 29

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, four parts of florasuram, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 50 parts of water and a grain size becomes 5 microns or less.

Pharmaceutical preparation example 30

Wet grinding is carried out and a suspension concentrate is obtained until it mixes 40 parts of flumioxazin, two parts of florasuram, three parts of polyoxyethylene sorbitan mono-oleates, three parts of CMC (carboxymethylcellulose), and 52 parts of water and a grain size becomes 5 microns or less.

[0022]

Hereafter, an experiment example is shown.

Assessment of criterion-for-evaluation weeding-out validity sets to "0" what does not completely or almost have a difference as compared with its germination of the tested weeds at the time of examination or whose condition of growth is not processed. Full withering to death, germination, or growth sets to "10" what is controlled thoroughly, and tested vegetation classifies into 11 steps of 0-10, and shows by 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10. It means that the assessment value "7" of weeding-out validity, "8", "9", and "10" are the outstanding weeding-out validity, and means that below the assessment value "5" is practically insufficient weeding-out validity. When phytotoxicity is hardly accepted, "harmless" and slight phytotoxicity are accepted, the phytotoxicity of a degree is accepted "smallness" and middle and strong phytotoxicity is accepted "inside", "size" shows assessment of phytotoxicity.

Upland field soil was filled in 25.5 experiment example 1cm long, 17.3cm wide, and a 7-cm-deep plastics pot, and seeding of soybeans, *Solanum nigrum*, and the *Sida spinosa* was carried out. Subsequently, the water-dispersible powder of flumioxazin (ten parts of sodium salt of the condensate of 50 parts of flumioxazin, alkyl naphthalenesulfonic acid, and formaldehyde) 1.5 parts of sodium salt of alkyl naphthalenesulfonic acid, the water-dispersible powder obtained by having ground after mixing 38.5 parts of kaolinite clay, the each predetermined quantity of the mixture of a full metosulam water dispersible granule (trade name: a python, the product made by Dow AgroSciences LLC) and this flumioxazin water-dispersible powder, and this full metosulam water dispersible granule was diluted with water, and it sprinkled uniformly to earth surface using the spraying apparatus. It raised in the after-treatment greenhouse and the safety to weeding-out validity and soybeans was investigated on the 17th. A result is shown in Table 1.

[Table 1]

供試化合物	葉量 (g/ha)	除草効力	葉害
		イヌホオズキ	ダイズ
フルミオキサジン	20	10	無害
フルメトスラム	40	8	無害
フルミオキサジン+	20+	10	無害
フルメトスラム	40		

[0023]

By using a [Effects of the Invention] book invention composite, upland field weeds and the weeds of the wide range class especially in soybean fields, a cornfield, and the field of wheat (wheat, a barley, rye, oat) can be weeded out selectively.